

Commonwealth of Kentucky
Division for Air Quality
EXECUTIVE SUMMARY

FINAL

Title V, Construction / Operating

Permit: V-07-017

Cash Creek Generation, LLC.

Cash Creek Generating Station

Henderson, KY

January 16, 2008

Reviewer: Combustion Section

Source I.D. #: 21-101-00134

Source A.I. #: 40285

Activity I.D. #: APE20060001

SOURCE DESCRIPTION:

Cash Creek Generation, LLC, has applied to the Kentucky Division for Air Quality for a Title V permit to construct a nominal 770 megawatt (MW) electric generation station to be located at Kentucky State Highway 1078 in Henderson, Kentucky. The IGCC facility, an air separation plant, a coal gasification facility and a combined cycle power generation facility are integrated into a single electric generation station to produce electricity from synthesis gas (syngas). The syngas will be the primary fuel used to fire two GE7FB series combustion turbines (CT's) in combination with heat recovery steam generating (HRSG) units and a steam turbine to produce electricity. For the IGCC combustion turbines, SCR and nitrogen diluent to control NO_x emissions has been included. Additional associated equipments are the tail gas thermal oxidizer, gasifier flare, the associated material storage and handling processes (coal, and combustion by-products), the cooling tower, the auxiliary boiler, and the emergency fire water pump.

The proposed project is classified as a Title V major source due to its emissions of regulated air pollutants. It constitutes a major stationary source as defined in 401 KAR 51:017, Prevention of Significant Deterioration of Air Quality and is subject to evaluation and review under the provisions of the PSD regulation. The proposed project will result in a significant net emissions increases of the following regulated air pollutants: Particulate matter (PM & PM₁₀), carbon monoxide (CO), volatile organic compounds (VOC), nitrogen oxides (NO_x), sulfur dioxide (SO₂), and sulfuric acid (H₂SO₄) mist.

A PSD review performed in accordance with EPA guidance involves the following six requirements:

1. Demonstration of the application of Best Available Control Technology (BACT).

2. Demonstration of compliance with each applicable emission limitation under 401 KAR Chapters 50 to 65 and each applicable emissions standard and standard of performance under 40 CFR Parts 60, 61, and 63.
3. Air quality impact analysis.
4. Class I area impact analysis.
5. Projected growth analysis.
6. Analysis of the effects on soils, vegetation, and visibility.

Furthermore, the source will also be subject to Title V, Title IV Phase II Acid Rain and Clean Air Interstate Rule (CAIR) permitting. The Title V permitting procedures are contained in 401 KAR 52:020. The Title IV permitting procedures are in 401 KAR 52:020, Permits, 401 KAR 52:060, Acid Rain Permit, 40 CFR Part 72, 40 CFR Part 76, and 40 CFR 97. CAIR permitting procedures are in 401 KAR 51:220, NO_x ozone season trading program and 401 KAR 51:210, NO_x annual trading program. This review demonstrates that all regulatory requirements will be met and includes a permit that would establish the enforceability of all applicable requirements. This review is to ensure that the source shall be considered in compliance with all applicable requirements, as of the date of permit issuance for the applicable requirements that are specifically identified in the permit, and specifically identified requirements that have been determined to not be applicable to the source.

An advertisement was placed in *The Gleaner* of Henderson, Kentucky on May 20, 2007 announcing the public comment period and announcing a public hearing At Henderson County Court House in Henderson, Kentucky on June 29, 2007. The Division for Air Quality received comments on the draft permit during the public hearing in Henderson, Kentucky on June 29, 2007. The public comment period expired 30 days from the date of publication.

Comments were received from Cash Creek Generation, LLC, U.S. EPA, Region 4, Environmental Law and Policy Center, Sierra Club, Warrick County, Newburg Township, City of Evansville, Dr. Theodore Stransky, Steve Jenkins of CH2M Hill and Reverend David E. Latham. Attachment A through Attachment J to the Response to Comments document lists the comments received and the Division's response to each comment. The Division made a final determination and issued a proposed permit on November 30, 2007.

FINAL DETERMINATION

In conclusion, a thorough analysis has been made of all relevant information available that pertains to this application. The Division has concluded that the proposed operation will comply with all air quality regulations and requirements. Therefore, a final determination has been made to issue a final permit.

U.S. EPA REVIEW:

The U.S. EPA was notified of the issuance of the proposed permit on November 30, 2007 via e-mail. The comment period expired 45 days from the date of e-mail. No comments were received from U.S. EPA during this period, however, for Emissions Unit 03, the consultant identified a typographical error in the SO₂ emission limit consisting of an extra "0". This has been corrected. The permit is now being issued final.